Weekly Construction Report

Hatchery Creek Design/Build Project

Two Weeks:	October 19 - November 1, 2014	**Project No:**	1305
Rain Days/Weather Conditions:	Rained 0.3" on Oct. 23rd, 0.5" on Oct. 28th, & .1" on Oct. 31st. (Burkesville gauge).		
Personnel on-site:	*EcoGro/Ridgewater:* John Arthur, Tony Berry, Tom Cutter, Eric Dawalt, Jon Linder, Chad Relinski, & Brad Redmon. *Stantec:* Oakes Routt (Oct. 20-21 for dye tracing, Oct. 27th for stakeout)		
Equipment on-site:	Komatsu PC 160 w/ hyd. thumb, PC 360 w/ hyd. thumb, Terex TA27, Bobcat T300		
Material deliveries to project site:	▪ N/A		
Work performed first week (Oct. 19-25):	• Removed wet, unsuitable soil in ravine in order to be ready to place compacted clay fill. Placed unsuitable soil in between old "rip rap" channel and temporary diversion channel to dry out. • Added another 40 CY of 18"+ D50 rock to temporary diversion rock chute to further stabilize the ravine bank toe. • Found "sinkhole" on Monday October 20th in the bottom of the ravine pool at ~Sta. 303+80, ~40 RT (upstream of bridge) that opened up due flow into the ravine caused by the large amount of rain the previous week. It appears to be a step in the limestone bedrock at ~elevation 572'. The bedrock drops 5'+ below the step towards river. o We performed dye tracing by placing non-toxic dye in the "sinkhole" while water was flowing. After 12+ hours, we located the dye coming back into the ravine along the toe of the banks in several locations at approximate elevation 570' downstream of ~Sta. 306+00. o Mike Brown (USACE Engineer) looked at the hole with us on October 29th and discussed solutions to seal it off. • Installed groundwater dam/trench under floodplain berm (~RT Sta. 205+00 to 209+50) by excavating trench with excavator to disrupt any permeable drainage layers, and re-installing soil and compacting it with the excavator bucket. • Installed first two feet of floodplain berm from ~RT Sta. 205+00 to 211+00. This is also being used as an access road. • Prepared area around clay core in ravine (~25' LT of stream CL) to extend the clay core down to bedrock. o Installed two temporary dewatering wells, one upstream and one downstream of the compacted clay core, in the ravine and pumped out the groundwater for three days prior to the trench excavation. • Excavated soil for floodplain and channel upstream of Campground Road (113+00 to 116+80) and hauled clay to ravine to stockpile for use in compacted clay core next week.		
Work performed second week (Oct. 26-Nov. 1):	• Extended the compacted clay core crossing the ravine by excavating 5'+ wide trench with excavator through previously installed clay core (bottom elevation was ~567') down to bedrock (~elevation 560') to disrupt any permeable layers. o We did find a few pockets of creek gravel, but it was not a continuous layer. o Clay was installed and compacted with an excavator bucket up to ~elevation 572'. Above this elevation, the compacted clay core was built 10'+ wide and compacted in ~8" lifts using a sheepsfoot compactor. It was built up to ~elevation 578' so far.		

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	• Extended compacted clay fill horizontally downstream in ravine to ~110 LT of stream CL. • Due to rain Tuesday night, the ravine fill was too wet to work on Wednesday. We spent the day moving boulders from the Disposal Area to the step pool area, and moving piles of trees off of Corps Excavation Site #2. • Started installing a "U"-shaped, compacted clay core centered on the proposed migration barrier to prevent groundwater seepage from the Public Fishing Area (PFA) stream into the ravine. It was extended down to bedrock in the section under the proposed migration barrier (in the bottom of the "U"). • Finished cutting final area of invasive Autumn Olive around bridge. • Due to rain on Friday, we could not haul soil. We spent the day stockpiling the boulders next to the river, and hauling off piles of trees from the PFA and Site #2.
Erosion & sediment controls installed:	❖ Maintained brush sediment check dam in bottom of ravine. ❖ Installed temporary seed on all disturbed areas along temporary diversion and ravine.
Work scheduled for next week:	Finish building "U"-shaped compacted clay core around migration barrier up to elevation 590' and filling adjacent areas. Continue excavating for floodplain and channel upstream of Campground Road (113+00 to 116+80) and haul clay to ravine. Finish compacted clay fill in ravine stream crossing ~LT Sta. 106+00 to 106+60 up to elevation 581' Build ravine rock spillway from plunge pool (~165' LT) up to 581'. Fill sinkhole in ravine with rock and then add a layer of geotextile and compacted clay. Continue delivering boulders for step pools and start delivering 18" D50 rock for step pools as weather allows.
Work planned for two weeks ahead:	Construct channel from ~Sta. 110+00 to 116+80. Continue delivering boulders and 18" D50 rock for step pools as weather allows.
General Comments:	➢ The appearance of the "sinkhole" and the rain every few days have caused a three week delay in the construction of the ravine fill. We are also taking extra precautions to install deeper compacted clay cores in the ravine that we believe will effectively prevent significant future seepage and loss of stream flow. ➢ The USACE has been releasing flow from the lake around the clock the past two weeks in order to lower the lake level that had been raised due to the heavy rain a few weeks ago. ➢ Aspen Construction, the USACE excavation contractor, is planning to mobilize next week. o We discussed the possibility of them starting excavation on Site #2 instead of #3 because that is a small area of excavation that can be excavated and finished more quickly. That will allow us to keep building channel over the next few months.
Prepared by: Eric Dawalt, P.E.	**Date:** 11-1-14

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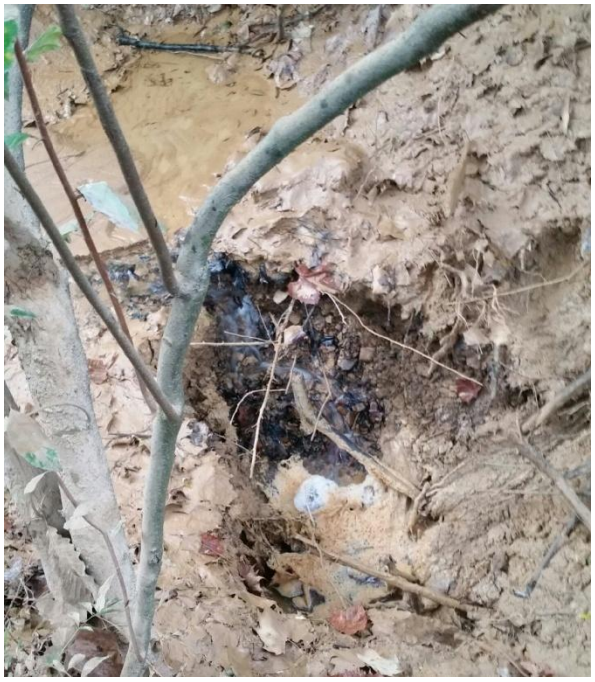
Pictures from the past two week's construction:

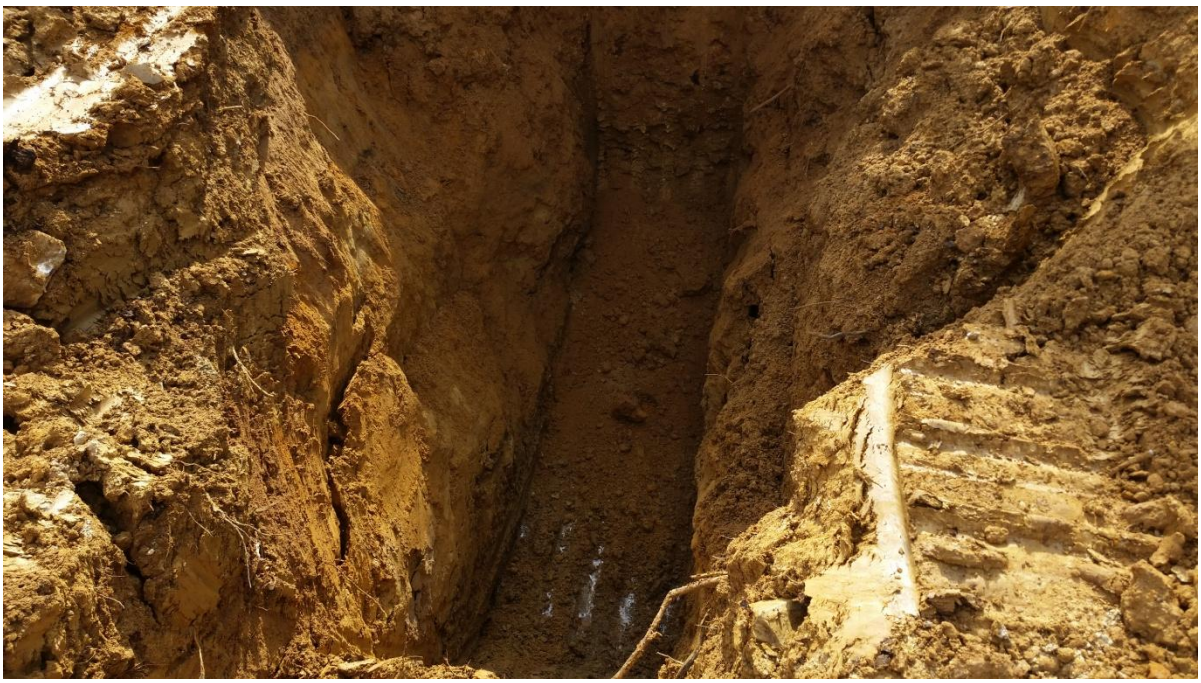


On left: "Sinkhole" in ravine pool (picture taken looking upstream at ~Sta. 303+80). On right: Bedrock step at "sinkhole" location in ravine after being excavated (picture taken from left bank looking across ravine).

Non-toxic dye was mixed (on left) and added to the "sinkhole" (on right) in order to locate where the groundwater resurfaces. The dye resurfaced in the ravine downstream of the compacted clay core work area over 12 hours later.

The first two feet of the floodplain berm was installed (~Sta. 205+00 to 211+00).

Installing dewatering well upstream of compacted clay core to lower groundwater levels in order to extend the compacted clay core down to bedrock (~Sta. 106+40).



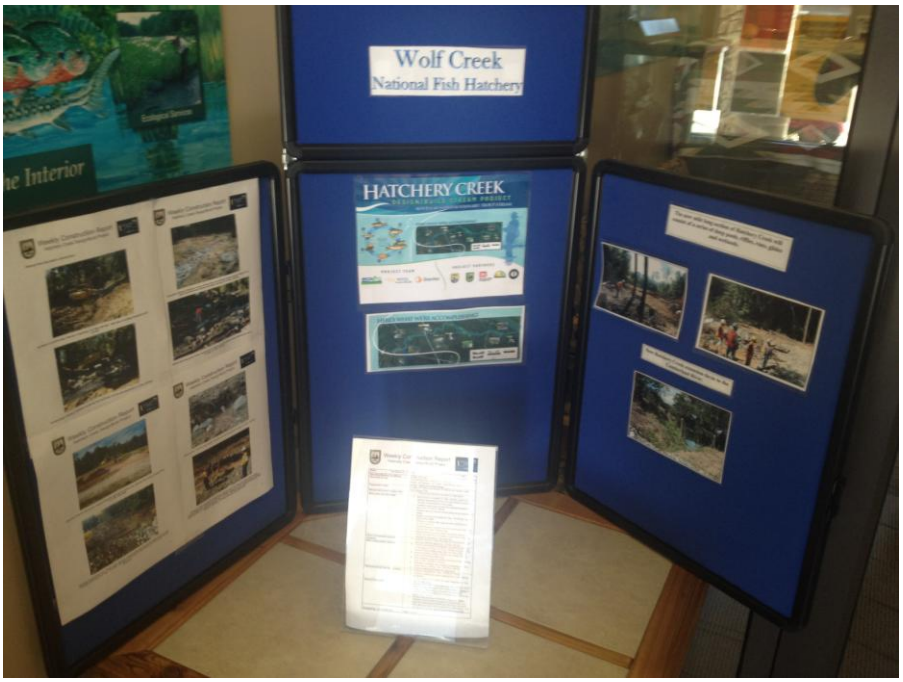
Trench excavated across ravine to bedrock in order to extend compacted clay core to bedrock (~Sta. 106+40, ~ 25′ LT). Clay was then installed and compacted in the trench with an excavator.

Compacted clay core being installed with sheepsfoot compactor up to elevation 578′ (picture taken from bridge looking downstream through the ravine at ~RT Sta. 106+40).

Excavating trench through the bottom section of the "U"-shaped compacted clay core located at the proposed migration barrier.

Gravel near bedrock surface that was excavated from the trench of the "U"-shaped compacted clay core located at the proposed migration barrier. Six-inch scale is shown for reference.

Compacted clay core being installed at location of proposed migration barrier (picture taken from gravel trail leading to bridge at ~Sta. 105+85). The bottom of the "U" is shown, with the two sides extending to the left of the picture.



Informational display about the Hatchery Creek Project at the Wolf Creek National Fish Hatchery Visitors Center produced by USFWS staff.